

REMARKS

Applicants have studied the Office Action dated April 22, 2005. No new matter has been added. It is submitted that the application, is in condition for allowance. Applicants have amended Claims 1-10 and 14-17. By virtue of this amendment, claims 1-17 are pending. Reconsideration and further examination of the pending claims in view of the above amendments and the following remarks is respectfully requested. In the Office Action, the Examiner:

- Rejected claims 1-10, 12, and 14-17 under 35 U.S.C. §102(b) as being anticipated by Sakai et al. (U.S. Patent No. 6,005,869); and
- Rejected claims 11 and 13 under 35 U.S.C. 103(a) as being unpatentable over Sakai et al. (U.S. Patent No. 6,005,869) as applied to claims 9 and 10 above, and further in view of Stallmo et al. (U.S. Patent No. 5,689,678).

Overview of the present invention

In a typical business environment, many offices are connected together so that the computers, printers, and associated equipment can communicate together. This configuration is known as a LAN (Local Area Network). There are two widely deployed types of LAN networks: Ethernet Net (IEEE 802.3) and Token Ring (IEEE 802.5). The Ethernet network is more widely deployed because it is typically less expensive to deploy. However, if several communication devices contend for communication at the same time, bottlenecks occur during which all devices except one must "Backoff" or hold-off communicating until this one device completes the communication. After this, another device starts communicating until all devices are complete. This is a problem with "simultaneous" communications. In an Ethernet network topology, the aggregated bandwidth of the network cannot approach the incremental bandwidth due to the lack of controlled loading. In contrast to an Ethernet network topology, a Token Ring does allow for controlled loading. As the name implies, a Token Ring network is based on token passing, for higher shared bandwidth, and avoids collisions based on the control of the tokens. Although both are useful, these LAN standards of Ethernet network and

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Token Ring network are not without their shortcomings. One shortcoming is that both Ethernet and Token Ring networks do not allow for simultaneous communications.

To provide simultaneous communications, the present invention couples at least one slave agent with at least two master agents including a first master agent and a second master agent on a bus. The present invention determines if there is data from at least one of the master agents, and if there is data from at least one of the master agents the data from the bus is tested to determine if it is a token. In response to the data from the bus being a token, the data is moved from the at least one of the master agents to the bus and the token is discarded from the bus. In the response to the data not being a token from the bus, the data is moved from the input of the bus to the output of the bus. In response to the data not being from the at least one of the master agents and the data is from the bus, the data is moved from the input of the bus to the output of the bus.

Support for these amendments may be found in the specification as originally filed. See page 5, lines 4-6; page 8, lines 10—12; page 11, lines 19-21; and FIGs. 1A and 3-9. No new matter was added by the amendment.

Rejection under 35 U.S.C. §102(b) as being anticipated by Sakai et al.

As noted above, the Examiner rejected claims 1-10, 12, and 14-17 under 35 U.S.C. §102(b) as being anticipated by Sakai et al. (U.S. Patent No. 6,005,869). Independent claims 1, 5, 8, 9, 16, and 17 have been amended to further clarify the presently claimed invention, which distinguishes over Sakai. Specifically, Sakai is silent on (Emphasis Added):

coupling at least one slave agent with at least two master agents
including a first master agent and a second master agent on a bus;

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determining if there is data from at least one of the master agents, and if there is data from at least one of the master agents then performing the sub-steps of:

testing if the data from the bus is a token;

if the data from the bus is a token, then moving the data from the at least one of the master agents to the bus and discarding the token from the bus; and

if the data is not a token from the bus, then moving the data from the input of the bus to the output of the bus;

wherein if the data is not from the at least one of the master agents and the data is from the bus, then moving the data from the input of the bus to the output of the bus.

Sakai discloses a communication network including a single master station and a plurality of slave stations. See Sakai at col. 1, lines 5-7. The master station sends out three types of tokens onto a ring shaped bus. The three tokens consist of an asynchronous token, an isochronous token, and a null token. See Sakai at col. 12, lines 1-15. Sakai teaches entering into an initialization state where the master sends out initialization mode packets (IM) onto the ring shaped bus to slave stations on the bus. Each station can connect or disconnect the flow of data through the ring shaped bus by opening or closing a switch within the station. After the master station knows how many slaves there are, it sends out asynchronous token packets to obtain and confirm actual ID addresses for each of the slaves. Each slave checks to see whether the token information coincides with its own information and if it does the station generates an asynchronous data packet with actual ID information. Once the token leaves the slave, the slave outputs the data packet onto the ring. When the master receives a token back, it analyzes the token to determine if a data packet is being sent to the master. The master then deletes and discards the received token. The master transmits another token when it receives a previously transmitted token back. This process is

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continues until all actual IDs are obtained and confirmed.

After the actual IDs are obtained and confirmed, Sakai teaches entering into a steady state to enable isochronous data communication. Sakai teaches that the master sends out an asynchronous token packet when the steady state is entered. Then every time a certain time passes after sending out the asynchronous token, the master sends out an isochronous token. When a slave station receives an isochronous token designated for that slave, it knows that it is authorized to send isochronous data. The slave waits for a DS packet informing this sending slave that the slave which is intended to receive the isochronous data is in a receiving state. The sending slave then sends the isochronous data onto the ring.

In contrast, the presently claimed invention couples at least one slave agent with at least two master agents including a first master agent and a second master agent on a bus. Sakai explicitly teaches one master station on a bus. See for example, Sakai FIGs. 1, 5, 8-12, 14, 19-24, and 29; Abstract; col. 1, lines 5-7; col. 3, lines 38-39; col. 4, lines 28-29; col. 5, lines 37-39; and col. 8, lines 2-3. Sakai also teaches that initialization mode packets are first sent out on the bus to the slaves before any tokens are sent. The tokens in the initialization state of Sakai are used by the single master to obtain and confirm the actual IDs of the slave agents. Also, Sakai teaches that slaves cannot transfer data onto the ring until it receives a token authorizing it to do so. For example, for a slave in Sakai to be able to output asynchronous or isochronous data onto the ring, the slave has to first receive an asynchronous or isochronous token. See for example Sakai at col. 4, lines 65-67 to col. 5, lines 1-8; col. 15, lines 60-62; and col. 28, lines 5-14.

The present invention, on the other hand, can be analogized to hopper cars on a train. If a train has five hopper cars, each of the five hopper cars can be filled at any given time, the train does not have to complete its trip before another hopper car can be filled. In other words, in the present invention there can be n-1 tokens on the ring at all times,

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where n is the number of agents and therefore, there can be $n-1$ requests/responses on the ring at the same time. In the present invention, all $n-1$ tokens are initially on the ring simultaneously.

Therefore, Sakai does not teach, suggest, or anticipate coupling at least one slave agent with at least two master agents including a first master agent and a second master agent on a bus; determining if there is data from at least one of the master agents, and if there is data from the at least one of the master agents then performing: testing if the data from the bus is a token; in response to the data from the bus being a token, then moving the data from the at least one of the master agents to the bus and discarding the token from the bus; and in response to the data not being a token from the bus, then moving the data from the input of the bus to the output of the bus; wherein in response to the data not being from the at least one of the master agents and the data is from the bus, then moving the data from the input of the bus to the output of the bus, as recited for independent claims 1, 9, and 17.

Independent claims 5, 8, and 16 similarly recite "coupling at least one slave agent with at least two master agents including a first master agent and a second master agent on a bus" and therefore, distinguish over Sakai as discussed above for claims 1, 9, and 17 for at least this reason as well.

As stated above, the Examiner cites 35 U.S.C. § 102(b) and a proper rejection requires that a single reference teach (i.e., identically describe) each and every element of the rejected claims as being anticipated by Sakai.¹ Because the elements in independent

¹ See MPEP §2131 (Emphasis Added) "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim."

claims 1, 5, 8, 9, 16 and 17 of "coupling at least one slave agent with at least two master agents including a first master agent and a second master agent on a bus" is not taught or disclosed by Sakai, the present invention distinguishes over Sakai for at least this reason. The Applicants respectfully submitted that the Examiner's rejection under 35 U.S.C. § 102(b) has been overcome and request that the Examiner withdraw the rejection of independent claims 1, 5, 8, 9, 16, and 17.

For the foregoing reasons, independent claims 1, 5, 8, 9, 16, and 17 distinguish over Sakai. Claims 2-4, 6-7, 10, 12, and 14-15 depend from claims 1, 5, 8, 9, 16, and 17. Since dependent claims recite all of the limitations of the independent claim, it is believed that claims 2-4, 6-7, 10, 12, and 14-15 are also distinguishable from Sakai as well, and the Examiner's rejection should be withdrawn, which withdrawal is respectfully requested.

Rejection under 35 U.S.C. §103(a) in view Sakai et al. and Stallmo et al.

As noted above, the Examiner rejected claims 11 and 13 under 35 U.S.C. 103(a) as being unpatentable over Sakai et al. (U.S. Patent No. 6,005,869) as applied to claims 9 and 10 above, and further in view of Stallmo et al. (U.S. Patent No. 5,689,678). With respect to Sakai, the above arguments regarding independent claim 9 are applicable here and will not be repeated.

Further, Stallmo and Sakai are completely silent on at least one agent designated as a slave agent coupled to a communications bus; at least two agents designated as a first master agent and a second master agent respectively, coupled to the communications bus; an interface to each of the master agents with an input from the bus and an output to the bus, the interface comprising a plurality of latches for testing if there is data, and in response to there being data from at least one of the master agents then testing if the data from the bus is a token; in response to the data from the bus is a token, then moving the data from the master to the bus and discarding the token; and in response

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to the data is not a token from the bus, then moving the data from the input of the bus to the output of the bus; in response to the data is not from the at least one of the master agents and the data is from the bus, then moving the data from the input of the bus to the output of the bus. Accordingly, independent claim 9 of the present invention distinguishes over both the Sakai and Stallmo references for at least this reason.

Continuing further, when there is no suggestion or teaching in the prior art for a hub processing unit for "at least one agent designated as a slave agent coupled to a communications bus; at least two agents designated as a first master agent and a second master agent respectively, coupled to the communications bus; an interface to each of the master agents with an input from the bus and an output to the bus, the interface comprising a plurality of latches for testing if there is data, and in response to there being data from at least one of the master agents then testing if the data from the bus is a token; in response to the data from the bus is a token, then moving the data from the master to the bus and discarding the token; and in response to the data is not a token from the bus, then moving the data from the input of the bus to the output of the bus; in response to the data is not from the at least one of the master agents and the data is from the bus, then moving the data from the input of the bus to the output of the bus" the suggestion cannot come from the Applicants' own specification. The Federal Circuit has repeatedly warned against using the Applicant's disclosure as a blueprint to reconstruct the claimed invention out of isolated teachings of the prior art. See MPEP §2143 and Grain Processing Corp. v. American Maize-Products, 840 F.2d 902, 907, 5 USPQ2d 1788 1792 (Fed. Cir. 1988) and In re Fitch, 972 F.2d 160, 12 USPQ2d 1780, 1783-84 (Fed. Cir. 1992).

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Moreover, the Federal Circuit has consistently held that when a §103 rejection is based upon a modification of a reference that destroys the intent, purpose or function of the invention disclosed in the reference, such a proposed modification is not proper and the *prima facie* case of obviousness cannot be properly made. See *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

Here the intent, purpose and function of Sakai taken alone or in view of Stallmo is a ring shaped communication network with a single master station and a plurality of slave stations. Sakai begins in an initialization state by first sending Initialization mode packets and then sends asynchronous token packets to obtain and confirm actual IDs of slave stations. Sakai then enters into a steady state enabling the transfer of isochronous data. However, the slaves do not transfer data until they receive a token authorizing them to transfer data. Because Stallmo teaches a point-to-point system (See FIG. 2), this combination as suggested by the Examiner destroys the intent and purpose of Sakai's intent of a ring-shaped system. Stated differently, a point-to-point topology cannot be combined with a ring-shaped topology. In contrast, the intent of the present invention is coupling at least two master agents with at least one slave agent on a bus, wherein n-1 (n is the number or ring agents) tokens can be on the bus at one time to provide simultaneous communications. Accordingly, the combination of Sakai and Stallmo results in an inoperable system. Therefore, the Examiner's case of "*Prima Facie Obviousness*" should be withdrawn.

Furthermore, the Federal Circuit stated in McGinley v. Franklin Sports, Inc., (Fed Cir 2001) that if references taken in combination would produce a "seemingly inoperative device," such references teach away from the combination and thus cannot serve as predicates for a *prima facie* case of obviousness. In re Sponnoble, 405 F.2d 578, 587, 160 USPQ 237, 244 (CCPA 1969) (references teach away from combination if combination produces seemingly inoperative device); see also In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984) (inoperable modification teaches away). Here, Sakai teaches a ring shaped topology and Stallmo teaches an

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incompatible point-to-point topology. Therefore, the combination of Sakai with Stallmo to produce the presently claimed invention where at least two master agents are coupled to at least one slave agent on a bus would produce an inoperable device. Accordingly, the combination of Sakai and Stallmo is improper.

For the foregoing reasons, independent claim 9 distinguishes over Sakai taken alone or in view of Stallmo. Claims 11 and 13 depend from claim 9. Since dependent claims recite all of the limitations of the independent claim, it is believed that, claims 11 and 13 are also distinguishable from Sakai alone or in view of Stallmo as well, and the Examiner's rejection should be withdrawn, which withdrawal is respectfully requested.

CONCLUSIONS

The remaining cited references have been reviewed and are not believed to affect the patentability of the claims as previously amended.

In light of the Office Action, Applicants believe these amendments serve a useful clarification purpose, and are desirable for clarification purposes, independent of patentability. Accordingly, Applicants respectfully submit that the claim amendments do not limit the range of any permissible equivalents.

Applicants acknowledge the continuing duty of candor and good faith to the disclosure of information known to be material to the examination of this application. In accordance with 37 CFR §§ 1.56, all such information is dutifully made of record. The foreseeable equivalents of any territory surrendered by amendment is limited to the territory taught by the information of record. No other territory afforded by the doctrine of equivalents is knowingly surrendered and everything else is unforeseeable at the time of this amendment by the Applicants and their attorneys.

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Applicants respectfully submit that all of the grounds for rejection stated in the Examiner's Office Action have been overcome, and that all claims in the application are allowable. No new matter has been added. It is believed that the application is now in condition for allowance, which allowance is respectfully requested.

PLEASE, if for any reason the Examiner finds the application other than in condition for allowance, the Examiner is invited to call either of the undersigned attorneys at (561) 989-9811 should the Examiner believe a telephone interview would advance the prosecution of the application.

Respectfully submitted,

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